

SOFTWARE DECODING OF COMPOSITE VIDEO WITHOUT A PHASE- LOCKED LOOP

ABSTRACT

A software decoder for converting standard composite video to RGB color components without a phase-locked loop. Subcarrier phase recovery for each video line is accomplished by performing a single DFT computation on the color burst samples for the frequency closest to the subcarrier frequency. The recovered subcarrier phase is added for each line to the orthogonal subcarriers which are mixed with the modulated chrominance for decoding of color difference signals I and Q. Digital composite video capture and store circuitry may be used to buffer the acquisition of real-time video to the speed of a DSP used for software processing. Interpolation can be used in the processing of digital composite video to improve vertical line alignment. Multiple composite video formats, such as NTSC and PAL, can be decoded with minor modifications in the software decoder operation. A cost-effective analog composite video interface to a personal computer can be implemented with minimal hardware for displaying, processing, storing, or transmission of digital video.

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